Chapter 23

HEAT AND COLD INJURY PREVENTION PROGRAM

1. <u>Purpose</u>. To provides information about specific guidance aboard MCAS Cherry Point for the prevention of heat and cold injuries. Risk management (RM) is required for all operational and training exercises. Reference (f) shall be used for all requirements and operational planning not covered in this order.

2. <u>Background</u>. The local hot weather season for MCAS Cherry Point and outlying fields spans from 1 May through 31 October. Additionally, reference (f) defines hot weather as temperatures at or above 80°F. Cold injuries are not as easily defined. The effects of low environmental temperatures on the human body may be localized or generalized, or both. They may occur at temperatures above or below freezing and under wet or dry conditions. The features of cold injury are dependent on the environmental temperature (ambient and wind chill temperature), exposure time and individual susceptibility or resistance.

3. Implementation

a. Conduct heat and cold injury prevention and awareness training at least annually or when deemed necessary by the commander utilizing qualified personnel. Training will include the causes, types, prevention, and emergency treatment of injuries.

b. Ensure that all heat or cold related mishaps are reported in accordance with ref (i).

4. MCAS Cherry Point Local Hot Weather Procedures

a. <u>MCAS Cherry Point Hot Weather Season</u>. The local hot weather season for MCAS Cherry Point and outlying fields spans from 1 May through 31 October. Additionally, reference (a) defines hot weather as temperatures at or above 80°F. Ensure personnel participating in training or operations are familiar with the Wet Bulb Globe Temperature (WBGT) index and the associated flag warning system. Basic signs and symptoms of heat related injuries are included in Table 23-1

b. Automated Heat Stress System. During the local hot weather season the Automated Heat Stress System (AHSS) is activated and monitored by METOC to ensure Wet Bulb Globe Temperature (WBGT) index flag conditions ("Green", "Yellow", "Red", and "Black") are disseminated. Once a WBGT index flag condition is met, exceeded, or no longer meets defined criteria, the condition is disseminated via telephone.

c. Wet Bulb Globe Temperature (WBGT) Index. The WBGT index reading is the standard used as an indicator of external heat stress on the human body. It is a single number derived mathematically from three distinct temperature measurements: wet bulb temperatures, dry bulb temperatures, and globe temperatures. Color coded flags are flown in strategic locations (Table 23-2) so that all personnel are aware of the current heat stress index and can make appropriate work schedule adjustments. (1) WBGT Index <80. Extremely intense physical exertion may precipitate heat exhaustion or heat stroke; therefore, caution must be taken. A white flag is flown at this condition level.

(2) WBGT index is between 80 and 84.9. Discretion is required in planning heavy exercise for un-acclimatized personnel. This is a marginal heat stress limit for all personnel. A green flag is flown at this condition level.

(3) WBGT index between 85 and 87.9. Strenuous exercise and activity must be curtailed for new and un-acclimatized personnel during the first 3 weeks of heat exposure. Outdoor classes in the sun must be avoided when the WBGT Index exceeds 85°F. A yellow (amber) flag is flown at this condition level.

(4) WBGT index is between 88 and 89.9. Strenuous exercise must be curtailed for all personnel with less than 12 weeks training in hot weather. A red flag is flown at this condition level.

(5) WBGT index is 90 or above. Physical training and strenuous exercise must be suspended for all personnel. (Excludes operational commitment not for training purposes). A black flag is flown at this level.

(6) Wearing body armor or NBC protective uniforms adds approximately 10 points to the measured WBGT. Exposure should be adjusted accordingly.

d. Telephone notification should contact METOC at (252)466-2761/4667. Telephone numbers which have been entered into the Telephone Alerting System will be contacted as flag conditions arise/change.

e. <u>Heat Index Dissemination Responsibilities</u>. The following have responsibilities pertaining to disseminating information related to heat conditions.

(1) Automatic Heat Stress System online can be found at: https://ahss.mcieast.usmc.mil/Home/

(2) Joint Public Affairs. When notified of flag conditions, post the appropriate flag condition on the marquees.

(3) Range Management Department. When notified of changes in Flag conditions, inform all ranges of the heat stress condition.

f. Unit Prevention/Treatment of Heat Related Injuries

(1) Prevention and First Aid. References (a), (b), (e) and (f) contain information necessary to prevent and treat heat related injuries. Table 23-1 is taken directly from enclosure (1) of reference (a) and discusses signs/symptoms and first aid for heat related injuries. In addition to the guidance in the references, commanders should ensure the following personnel/equipment is available during unit-sponsored physical training.

(a) A corpsman or combat medic.

(b) A government safety vehicle for transporting equipment and stragglers (not heat injury victims).

(c) Ample water and/or hydration sports drinks.

Enclosure (1)

(d) Emergency communications or cell phones to call Fire and Emergency Services (FES / 911).

g. <u>Treatment</u>. Naval Health Clinic Cherry Point (NHCCP) does not provide emergency services and is not currently prepared or equipped to handle heat related injuries. Marines with heat related injuries should not be transported to NHCCP. CALL 911. FES is trained and equipped to assist personnel with heat injuries and they can arrive at most locations aboard MCAS Cherry Point within five minutes. While awaiting FES, personnel should administer appropriate first aid per Table 23-1.

h. Supervisors should be constantly on the lookout for heat symptoms during outdoor activities. Below are some basic signs and symptoms of heat related injuries.

Signs and Symptoms of Heat Related Injuries

Table 23-1

SIGNS/SYMPTOMS	FIRST AID
Heat Cramps: Muscle cramps of the arms, legs, and/or stomach and excessive sweating.	 Move individual to a cool shady area or improvise shade; loosen clothing. Monitor the individual and give water as tolerated; should slowly drink at least one full canteen.
Heat exhaustion: Heavy sweating with pale, moist, cool skin; headache, weakness, dizziness, and/or loss of appetite, heat cramps, nausea (with or without vomiting), chills (gooseflesh), rapid breathing, change in mental status, confusion, and tingling of the arms and/or feet. Core temperature is 104°F or less.	 Move individual to a cool shady area or improvise shade; loosen or remove clothing. Monitor the individual and give water as tolerated; should slowly drink at least one full canteen. Spray or pour water on individual and fan to cause a cooling effect. Urgent medical evaluation is indicated, especially if there are mental status changes. If you have ice packs, use them. Put them in arms, armpits, and neck.
Heat Stroke: The individual stops sweating (hot, dry skin). They first may experience headache, dizziness, nausea, fast pulse and respiration, seizures and mental confusion. They may collapse and suddenly become unconscious. Core temperature is greater than 104°F, typically around 108°F(although it may be as low as 102°F). THIS IS A MEDICAL EMERGENCY.	 Heat stroke is a life-threatening medical emergency. Move the individual to a cool shady area or improvise shade; loosen or remove clothing. Start cooling the individual immediately. Spray or pour water on individual and fan. Elevate legs. If you have ice packs, use them. Put them in arms, armpits, and neck. If conscious, individual should slowly drink at least 1 cup (8 oz.) of cool water every 20 minutes. Do not force water if abdominal discomfort occurs. Seek medical aid immediately. Continue cooling while awaiting transport, and continue first aid while enroute.

Flag Color	WGBT Index (°F)	Intensity of Physical Exercise							
Green	80-84.9	Discretion required in planning heavy exercise for unseasoned personnel.							
Yellow	85-87.9	Strenuous exercise and activity (e.g., close order drill) should be curtailed for new and un-acclimated personnel during the first three weeks of heat exposure.							
Red	88-89.9	Strenuous exercise curtailed for all personnel with less than 12 weeks training in hot weather.							
Black	90 and Above	Physical training and strenuous exercise suspended for ALL PERSONNEL (excludes operational commitment not for training purposes).							

5. MCAS Cherry Point Cold Weather Precautions

a. Cold Stress Effects

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(1) The adverse effects of low environmental temperatures on the human body may be localized or generalized, or both. They may occur at temperatures above or below freezing and under wet or dry conditions. The features of cold injury are dependent on the environmental temperature (ambient and wind chill temperature), exposure time and individual susceptibility or resistance. The body's response to total cooling is to try and maintain body temperature and increase heat production. Shivering is the body's attempt to increase heat production. With prolonged or severe exposure, the defense mechanisms fail, heat loss exceeds heat production, and the body temperature falls.

(2) Cold-related injuries are usually preventable. Preventive measures include providing adequate clothing, nutrition, hydration, and dry shelter, limiting or avoiding alcohol, and allowing gradual acclimatization. Proper clothing is especially important, such as dry suits for diving, anti-exposure suits on deck (also gear for the face, hands, feet and head), as well as changing socks at least daily. Using proper equipment, such as plastic-coated tools and equipment (instead of handling bare metal), will also help in reducing cold-related injuries. Wind speed (wind chill) must always be taken into account when considering the severity of cold stress.

(3) Each individual should know how to minimize cold stress, recognize the symptoms of cold injuries, and provide basic first aid. Common cold stress conditions are listed in reference (f).

b. Environmental Measurements - The wind chill temperature is how cold the human body will feel due to a combination of cold temperature and air movement (wind). As the air speed increases in cold temperatures, heat is drawn from the body, driving down skin temperature and eventually the internal body temperature. Therefore, the combination of wind and temperature creates the effect of wind chill, which makes it feel much colder. The Wind Chill Temperature Index is displayed Table 23-3.

c. Frostbite/Hypothermia

(1) Keep in mind that even covered skin can be vulnerable to frostbite, so the best preventative measure is to avoid extended exposure to extremely cold conditions.

(2) Frostbite manifests itself as superficial damage (skin turns white, waxy, or grey-yellow in color and becomes numb), and progresses to a deep frostbite, where the skin becomes entirely numb, may blister, and even turn black in color.

(3) If frostbite occurs, or it's suspected, get indoors immediately and seek first aid. Clothing that could restrict blood flow should be removed and sterile gauze or medical wrap should be inserted between fingers and toes to prevent them sticking together. Elevation may help and minor, superficial frostbite can be submerged in warm (100-105 degree) water.

(4) Hypothermia occurs when body temperatures drop dramatically, and symptoms which include shivering, exhaustion, confusion, shallow breath, irregular heartbeat, loss of coordination, and others may indicate this injury.

(5) If hypothermia is suspected, move indoors immediately and call for medical attention. Remove any wet clothing and use blankets, towels, and other materials around the victim to promote warmth and dry conditions. Handle the individual carefully, keep them in a horizontal position, and keep their head covered to preserve body heat. If necessary, be prepared to perform CPR or call 911.

Table 23-3																			
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Temperature (°F)																			
	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
z = z	20	30	24	17	1.1	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
Wind (mph)	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
lee.	50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
	55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
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